Chesterfield County, Virginia

Memorandum

DATE: JUNE 12, 2007

TO: CHESTERFIELD COUNTY PLANNING COMMISSION

FROM: RICHARD MCELFISH,
DIRECTOR OF ENVIRONMENTAL ENGINEERING
SCOTT FLANIGAN,
WATER QUALITY MANAGER

SUBJECT: PROPOSED AMENDMENTS TO ORDINANCES RELATING TO WATER QUALITY IN THE UPPER SWIFT CREEK WATERSHED

Please find attached the proposed amendments relating to water quality in the Upper Swift Creek Watershed. An explanatory summary has also been attached for your consideration. Staff will be available at the June 19, 2007 work session to further discuss the proposed amendments.

These proposed amendments will address water quality concerns related to total phosphorus loads form future development. The proposed amendments will promote development standards that are consistent with the protection of critical natural systems within the watershed and facilitate the county's water quality goals for area streams and the Swift Creek Reservoir.

Staff is requesting the Planning Commission schedule a public hearing for July 17, 2007 to discuss the proposed changes.

C: Lane B. Ramsey, County Administrator
M.D. "Pete" Stith, Deputy County Administrator for Community Development
Kirkland A. Turner, Director of Planning

Summary of Proposed Amendment to Ordinances Relating to Water Quality in the Upper Swift Creek Watershed.

These ordinance amendments are designed to implement the water quality recommendations of the draft Upper Swift Creek Plan amendments. The watershed consists of land in the county located upstream of the Swift Creek Reservoir Dam. For land that is included in the watershed, the proposed amendments would address the following matters:

- **Section 8-6. Erosion and sediment control plans.** The proposed amendment allows for increased erosion and sediment control measures to be used; providing additional protection to environmental features and waterbodies.

  Erosion caused by stormwater is detrimental to water quality due to displaced sediment into streams. This deposition is of particular concern during construction activities. Areas under construction are characterized by increased erosion of unprotected, exposed soil during rain events. Excessive pollutant loads can be produced from construction areas if proper erosion-control practices are not implemented. Even with proper implementation of erosion-control practices, Total Suspended Solid (TSS) loads from construction sites are significantly higher than loads from stabilized areas. Erosion and sediment control practices can greatly reduce TSS exported from construction sites. To ensure the protection of water quality, when construction is near or adjacent to resource features or waterbodies, additional measures that exceed the state minimum standards will be required.

- **Section 17-76. Curb and gutter.** The proposed amendments allow for the use of roadside ditches in the place of curb and gutter along local streets in subdivisions within the watershed.

  The purpose of this amendment is to reduce overall impervious surface within a development associated with road widths and curb/gutter. Furthermore; the benefits of using roadside ditches in place of curb/gutter will enable additional pollutant reduction from road surfaces. This is accomplished allowing pollutants to first be conveyed to a pervious area for treatment through infiltration and settling. Alternative design measures may be incorporated into the ditches to provide additional pollutant removal efficiency and reduction of storm flow volume. Examples of this would be increase infiltration, lengthen flow paths, slope reduction or meandering the channel.

Section 19-237. Upper Swift Creek Watershed.

- **Sec. 19-238. Development regulations.** The proposed amendments reduce the post-development total phosphorus loads for future development to a level which would require no net increase over pre-development levels. This new standard recognizes the importance of protecting the watershed by ensuring that development within the watershed contributes to the maintenance of water quality.

- **Sec. 19-238. Development regulations.** The proposed amendment requires the preparation of a natural resource inventory (NRI) for development sites prior to zoning. This document will identify natural resources that may be adversely affected by construction activities during the development process. Having this information enables

the site designer, developer and county officials to make informed decisions about the development of the site and the role of these natural features in the protection of water quality. The preservation, protection, enhancement and restoration of environmentally important site features such as streams, natural swales, riparian buffers, wetlands, steep slopes, mature trees, flood plains, woodlands and highly permeable soils should be encouraged and may provide compensation via a stormwater credit system.

This information in the NRI is typically required during the development process and should not significantly increase the applicant's costs. By completing this inventory prior to the application for a rezoning request, the information in the NRI will be used at a time when it can provide the greatest benefits. Some of these benefits may include avoidance and minimization of environmental impacts, a smoother review process and the ability to present a more comprehensive project plan to public and private stakeholders at time of zoning which can maximize LID uses.

- **Sec. 19-238. Development regulations.** The proposed amendments encourage the use of low impact development (LID) site planning and practices to reduce pollutants and control stormwater runoff. As a result of the more restrictive development standard, new technology must be employed.

  Conventional land-use and development practices do not adequately protect aquatic resources and habitat, nor mimic the natural hydrologic regimes. LID uses technology-based practices to ensure that a site's post-development hydrologic functions mimic those in its pre-development state. These functions include groundwater recharge, infiltration, and reduction frequency/volume of stormwater discharges to receiving streams. LID development practices and technologies focuses on identifying **project-specific** site solutions. LID takes advantage of natural resources for their functional, recreational and aesthetic qualities benefits the county, the developer, the home buyer, and the environment.